

Table-Lookup Methodology with a Branch, for $\log_b(X)$.

FIG. 1
(PRIOR ART)

Get B_j from set of breakpoints
 Compute $Z_{hi} + Z_{lo} \approx C(YB_j - 1)$, $|Z_{hi} + Z_{lo}| \leq \delta$

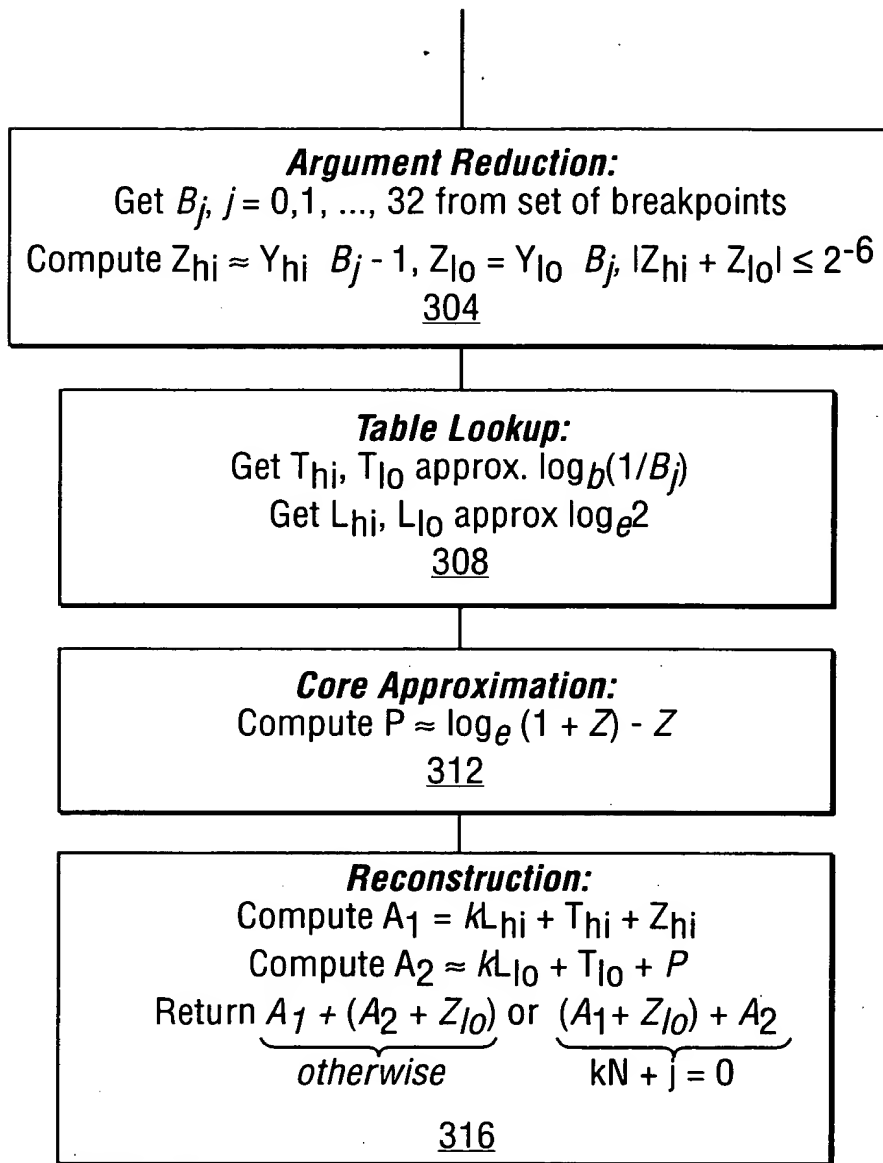
Table Lookup:
Get T_{hi} , T_{lo} approx. $\log_b(1/B_j)$
Get L_{hi} , L_{lo} approx $\log_b 2$
208

Core Approximation:
 Compute $P \approx \log_b (1 + Z/C) - Z$
212

Reconstruction:
 Compute $A_1 = kL_{hi} + T_{hi} + Z_{hi}$
 Compute $A_2 \approx kL_{lo} + T_{lo} + P$
 Return $\underbrace{A_1 + (A_2 + Z_{lo})}_{otherwise}$ or $\underbrace{(A_1 + Z_{lo}) + A_2}_{kN + j = 0}$

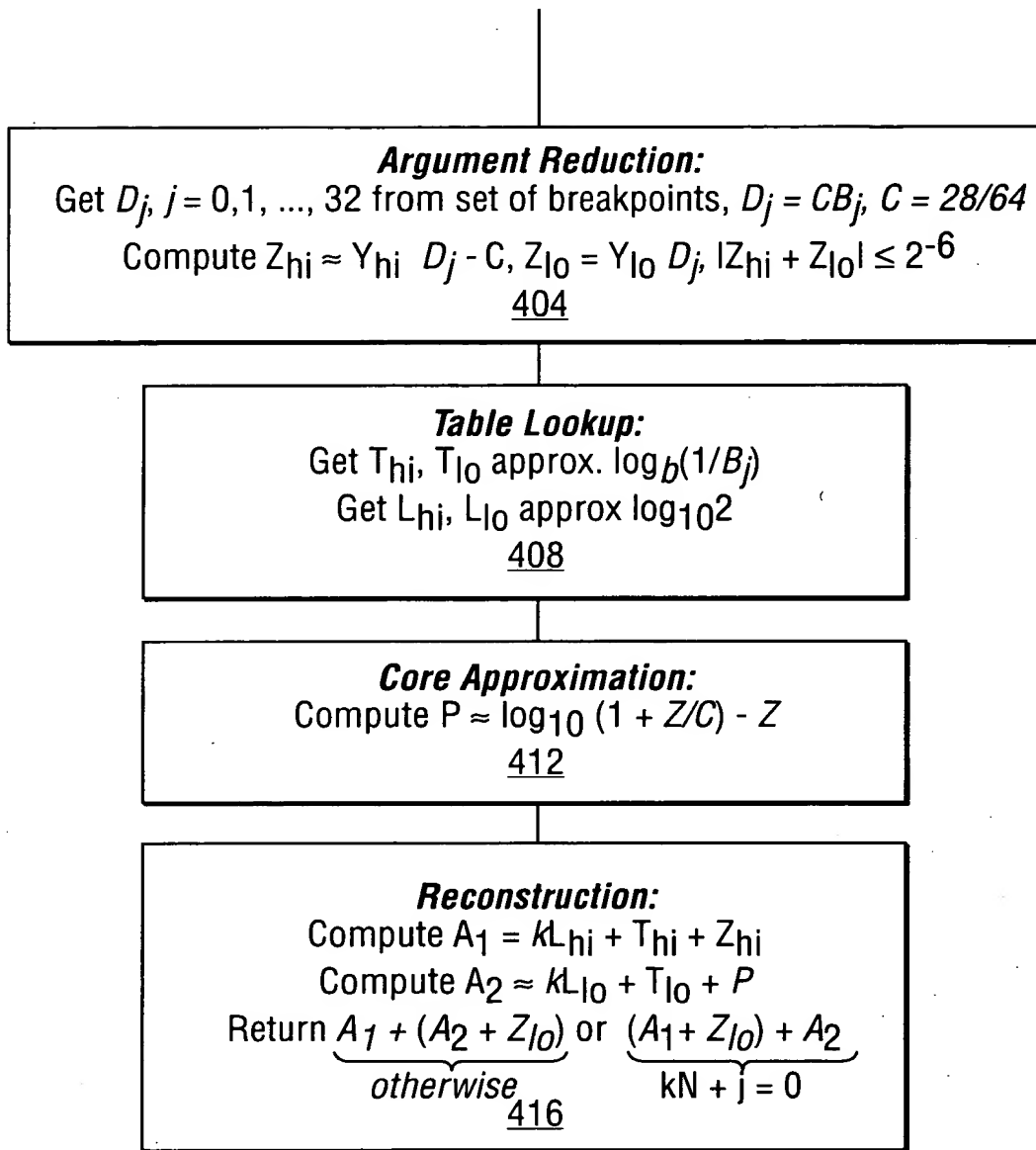
FIG. 2

03675464-060501



Branch-Free Table-Lookup $\log_e(X)$.

FIG. 3



Branch-Free Table-Lookup $\log_{10}(x)$.

FIG. 4

03075464.060501

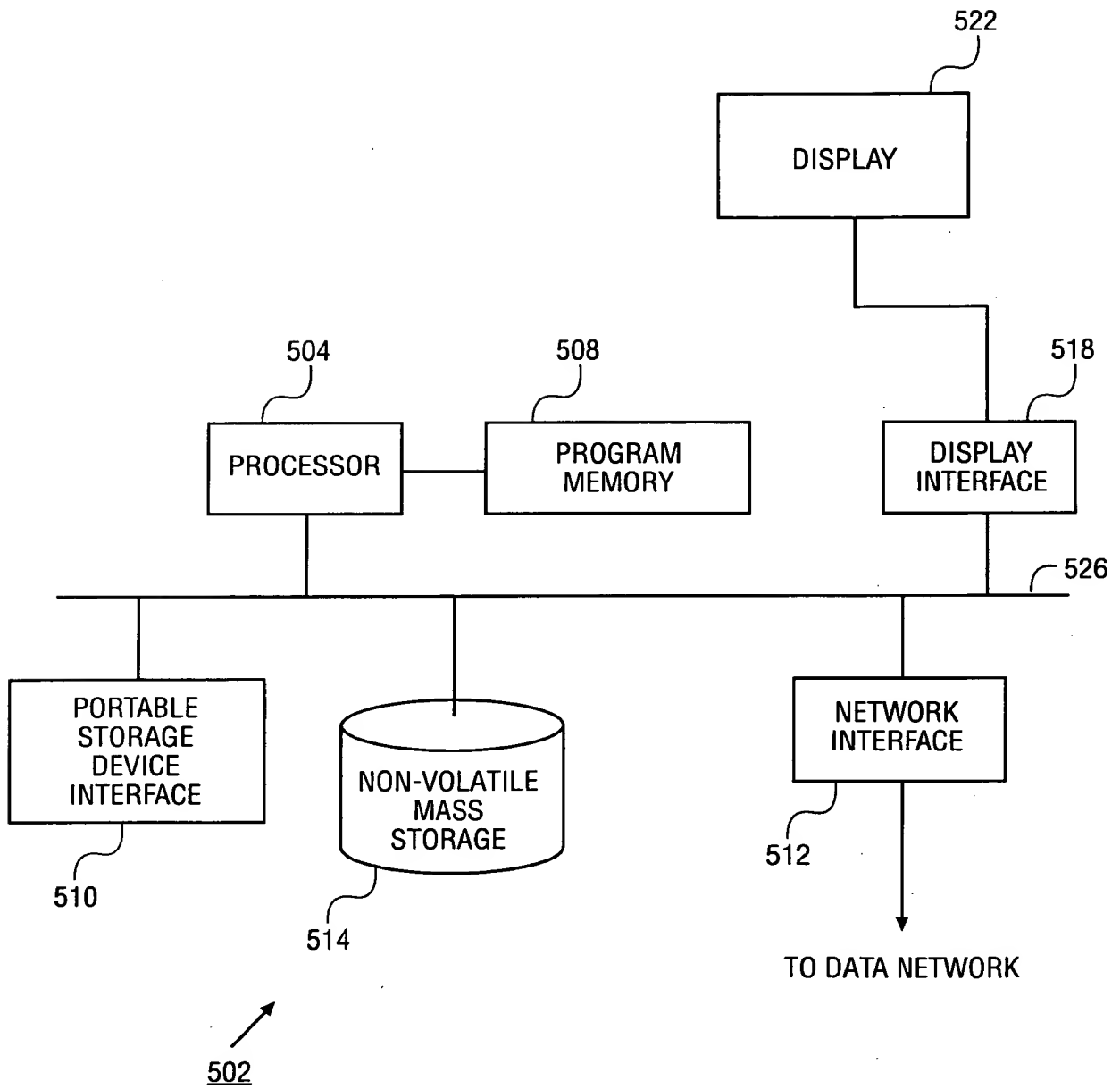


FIG. 5